In India, from the first plan period onwards, thrust was given for the development of irrigation potential with the goal of attaining self-sufficiency in the food front and reached the potential of 80 M.ha by 1990. But, there is a vast gap between the potential created and utilised. Various attempts made to bridge this gap are on-farm-development, rotational water supply, improving the main system, providing training to the system managers as well as the user-farmers, and improving all other aspects of system management. In this regard, large number of research works are done to assess the system performance in terms of adequacy, equity, timeliness and productivity. But much work is not done as to study and learn how the irrigation setups are organised and function to achieve the system objectives.

Different types of Irrigation Organisations exhibit different organisational procedures resulting in differing performance levels. The present research is undertaken to study the Irrigation Department (ID) of Tamilnadu and understand how the ID is organised to operate, maintain and manage the irrigation systems in the state. The Irrigation Department has managerial and operational functions. Managerial functions of ID are assessed by conducting interviews with managerial functionaries viz. SEs, EEs, and AEEs using the Organisational Assessment Instrument (OAI). It is a general purpose instrument which is used here to study the irrigation
organisation. ID can be disaggregated into a number of units consisting of a supervisor and members directly reporting to him. Their responses are analysed by factor analysis technique and a set of six principal factors are extracted which account for 86.40 percent of variance. Analysis indicates that ID has certain well defined objectives and performance appraisal criteria; defined policies, and rules and procedures. The powers are devolved and distributed at various levels and it has good communication flows. But it lacks in modern communication facilities for speedy and reliable data transfer.

The operational aspects of irrigation management are assessed by selecting a representative system and interviews are conducted with AEEs with the questionnaire used to study the Irrigation Organisations in different countries. The levels of attainment in the seasonal and intra-seasonal planning for matching the supply and demand, implementation of decisions made, and monitoring and evaluation are in the range of very low to average. But, they are higher than those in other developing countries. Lower level functionaries i.e, Section Officers and Gate Operators are interviewed with a different set of questionnaires to ascertain their perception on the operation of the system, water distribution and their interaction with their superiors and farmers. Functioning of the system managers is observed for seven continuous irrigation seasons by participant observations. The farmers of this system are formally or informally organised to plead and cooperate with ID officials to meet their irrigation demand and confront with them to restore their legitimate rights.
The present operation rules are framed in 1973 and 1977. Since, there is a dynamic change in the crop and crop calendar in the user domain, they need revision. Further the system managers are handicapped without any decision making tool or aid to consider various alternatives available for them.

To fill this gap, simulation models are developed for seasonal and intra-seasonal planning and implementation incorporating the various changes necessitated due to the changed cropping scenario. The models can be used by different levels of functionaries. The models run with a set of ten year data indicate that there is a lot of scope for saving water, thereby improving the system performance. The models will help the system manager to take a synoptic view about the various alternatives available to him and for making better decisions that come up to the expectation of the farmers; increase productivity; conserve water and meet the water needs of other sectors.